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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,492	03/10/2004	Yihong Qi	1805-4001	3992
24259	7590	11/04/2005	EXAMINER	
BRENDA POMERANCE LAW OFFICE OF BRENDA POMERANCE 260 WEST 52 STREET SUITE 27B NEW YORK, NY 10019			TAKAOKA, DEAN O	
			ART UNIT	PAPER NUMBER
			2817	

DATE MAILED: 11/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.		Applicant(s)	
	10/797,492		QI ET AL.	
	Examiner		Art Unit	
	Dean O. Takaoka		2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8, 9, 11, 13-15 and 17-24 is/are rejected.
- 7) ☒ Claim(s) 7, 10, 12 and 16 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5, 8, 9, 11, 13, 14, 17, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Evtioushkine et al. (U.S. Patent No. 6,281,843) for reasons of record contained in the Office action dated June 24, 2005.

Claim 1:

Evtioushkine et al. (best shown in Fig. 2) shows a coupler comprising a first element (20) having a rectangular portion and a tapered portion with a nose (the nose area comprising the end area of the tapered portion), a second element (also labeled as element 20) having a rectangular portion and a tapered portion with a nose, a third element (260/264) disposed between the nose of the first element and the nose of the second element, a matching network for electrically connecting the first element, the second element and the third element (262).

Claim 5:

Where the third element has a symmetric shape (where the rectangular shape of 260 is symmetric).

Claim 8:

Where the tapered portions of the first and second elements are approximately the same size (shown in Fig. 2).

Claim 9:

Where the tapered portions have straight edges on either side of the nose (where top and bottom angled edges of the tapered portion are straight).

Claim 11:

Where the matching network (262) has respective components between the first (20) and second (20) elements, the first and third (260/264) element, and second and third element.

Claim 13:

Having a VSWR of better than 2:1 over a frequency range of at least 600 to 2600 MHz (where Fig. 6 shows a VSWR of better than 2:1 at points 2-4 and Fig. 7 at points 2-4).

Claim 14:

Having dipole-like radiation patterns (Fig. 2).

Claim 17:

A bow-tie coupler comprising a first element (20) having a tapered portion (Fig. 2), the first element for connecting to the first portion of a signal feed structure (nose portion connected to signal feed element 26), a second element (20) having a tapered portion, a third element (260/264) for connecting to a second portion of the signal feed structure, the third element located between the tapered nose portions of the first and

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second elements, and a matching network for electrically connecting the first, second and third elements.

Claim 21:

Having a VSWR of better than 2:1 over a frequency range of at least 600 to 2600 MHz (where Fig. 6 shows a VSWR of better than 2:1 at points 2-4 and Fig. 7 at points 2-4, discussed in the reasons for rejection of claim 13 above).

Claims 1 – 5, 8, 14, 17, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Vega et al. (U.S. Patent No. 6,265,977) for reasons of record contained in the Office action dated June 24, 2005.

Claim 1:

Vega et al. (best shown in Fig. 1) shows a coupler comprising a first element (112) having a rectangular portion and a tapered portion with a nose (all shown in 112), a second element (114) having a rectangular portion and a tapered portion with a nose, a third element (116) disposed between the nose of the first element and the nose of the second element, a matching network for electrically connecting the first element, the second element and the third element (where 116 comprises elements shown in Fig. 13 where the rectifier matches or rectifies the power signal and/or the decoder, controller, modulator et al. decodes the signal and provides a modulated coupled signal to the antenna elements, thus comprising the matching network).

Claim 2:

Where the length of the rectangular element of the second portion is longer than the length of the rectangular portion of the first element (col. 9, lines 5-10; where Vega et al. teaches non-symmetrical and/or unequal patterns of antenna elements).

Claim 3:

Where the second element has an arm (nose portion connected to 116) for connecting to the matching network.

Claim 4:

Where the arm is approximately equal to the length of the third element (where the term "approximately" is broad, thus the length of the nose approximately equal to the length of element 116).

Claim 5:

Where the third element has a symmetric shape (where the rectangular shape of 116 is symmetric).

Claim 8:

Where the tapered portions of the first and second elements are approximately the same size (shown in Fig. 1).

Claim 14:

Having dipole-like radiation patterns (Fig. 11).

Claim 17:

A bow-tie coupler comprising a first element (114) having a tapered portion (Fig. 1), the first element for connecting to the first portion of a signal feed structure (nose portion connected to signal feed element 116 where 116 provides power and signal to

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antenna elements 114), a second element (112) having a tapered portion, a third element (e.g. nose portion) for connecting to a second portion of the signal feed structure, the third element located between the tapered nose portions of the first and second elements, and a matching network for electrically connecting the first, second and third elements.

Claim 18:

Where the length of the rectangular element of the second element is longer than the length of the first element (col. 9, lines 5-10; where Vega et al. teaches non-symmetrical and/or unequal patterns of antenna elements, discussed in the reasons for rejection of claim 2 above).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Evtioushkine et al. in view of Liu et al. (U.S. Patent No. 5,914,695) for reasons of record contained in the Office action dated June 24, 2005.

Evtioushkine et al. teaches the coupler comprising a first element having a tapered nose portion, the first element for connecting to a first portion of a signal feed structure, a second element having a tapered nose portion, a third element for connecting to a second portion of a signal feed structure, a matching network for

electrically connecting the first element, the second element and the third element, discussed in the reasons for rejection of claim 1 above, but does not show where the third element has a square shape.

Liu et al. (Fig. 1) shows a similar tapered antenna where the third element has a square shape.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the coupler disclosed by Evtioushchine et al. in the test chamber disclosed by Liu et al. Such a use would have realized the advantageous benefit of providing the advantageous benefit of providing a conducting patch reducing the resonating frequency of the antenna (col. 3, lines 16-18; Liu et al.) thus suggesting the obviousness of the modification.

Claims 15, 19, 22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Evtioushchine et al. in view of Suh et al. (U.S. Patent No. 6,842,141) for reasons of record contained in the Office action dated June 24, 2005.

Claims 15, 19 and 22:

Evtioushchine et al. teaches the coupler comprising a first element having a tapered nose portion, the first element for connecting to a first portion of a signal feed structure, a second element having a tapered nose portion, a third element for connecting to a second portion of a signal feed structure, a matching network for electrically connecting the first element, the second element and the third element,

discussed in the reasons for rejection of claim 1 above, but is silent for use in a radio frequency test chamber.

Suh et al. teaches a similar antenna for use in an anechoic chamber (col. 13, line 12).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the coupler disclosed by Evtioushchine et al. in the test chamber disclosed by Suh et al. Such a use would have realized the advantageous benefit of providing accurate test results where the use of anechoic test chambers is well-known in the art for antenna testing thus suggesting the obviousness of using the antenna or coupler in the test chamber to obtain accurate test results.

Claim 24:

Having a VSWR of better than 2:1 over a frequency range of at least 600 to 2600 MHz (where Fig. 6 of Evtioushchine et al. shows a VSWR of better than 2:1 at points 2-4 and Fig. 7 at points 2-4, discussed in the reasons for rejection of claim 13 above).

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Evtioushchine et al. in view of Hemmie et al. (U.S. Patent No. 5,293,175) for reasons of record contained in the Office action dated June 24, 2005.

Evtioushchine et al. teaches the coupler comprising a first element having a tapered nose portion, the first element for connecting to a first portion of a signal feed structure, a second element having a tapered nose portion, a third element for connecting to a second portion of a signal feed structure, a matching network for

electrically connecting the first element, the second element and the third element, discussed in the reasons for rejection of claim 1 above, but is silent where the signal feed structure is a coaxial cable, the first portion of the signal feed structure is a ground reference potential for the coax cable and the second portion is a center pin of the coax cable.

Hemmie et al. (Fig. 3) shows a similar tapered antenna where the signal feed structure is a coaxial cable (130), the first portion of the signal feed structure is a ground reference potential (160) for the coax cable and the second portion is a center pin (300) of the coax cable.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the coupler disclosed by Evtioushkine et al. in the test chamber disclosed by Hemmie et al. Such a use would have realized the advantageous benefit of providing an external feed connection for the antenna as is well-known in the art thus suggesting the obviousness of the modification.

Claims 15, 19, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vega et al. in view of Suh et al. (U.S. Patent No. 6,842,141) for reasons of record contained in the Office action dated June 24, 2005.

Claims 15, 19 and 22:

Vega et al. teaches the coupler comprising a first element having a tapered nose portion, the first element for connecting to a first portion of a signal feed structure, a second element having a tapered nose portion, a third element for connecting to a

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second portion of a signal feed structure, a matching network for electrically connecting the first element, the second element and the third element, discussed in the reasons for rejection of claim 1 above, but is silent for use in a radio frequency test chamber.

Suh et al. teaches a similar antenna for use in an anechoic chamber (col. 13, line 12).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the coupler disclosed by Vega et al. in the test chamber disclosed by Suh et al. Such a use would have realized the advantageous benefit of providing accurate test results where the use of anechoic test chambers is well-known in the art for antenna testing thus suggesting the obviousness of using the antenna or coupler in the test chamber to obtain accurate test results.

Claim 23:

Where the length of the rectangular element of the second element is longer than the length of the first element (col. 9, lines 5-10; where Vega et al. teaches non-symmetrical and/or unequal patterns of antenna elements, discussed in the reasons for rejection of claim 2 above).

Response to Arguments

Applicant's arguments, see page 2, filed October 11, 2005, with respect to claim 16 have been fully considered and is persuasive. The rejection of claim 16 has been withdrawn.

Applicant's arguments filed October 11, 2005, with respect to all other claims, other than claim 16, have been fully considered but they are not persuasive.

Claims 1, 5, 8, 9, 11, 13, 14, 17, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Evtioushkine et al.:

Claim 1: Applicant submits "*Evtioushkine fails to show or suggest the claimed third element and further fails to show or suggest the claimed matching network*" (page 2) which the Examiner disagrees. It is the position of the Examiner that the "third element" is shown by Evtioushkine et al. as combined elements 260 and 262 (typographically identified as 264) where element 262 is shown in Fig. 2 overlapping central dividing transmission line 260 and where 260 and 262 are shown as a unitary element in Fig. 3. Element 262 (Fig. 2) although distally placed on central dividing transmission line 260 is nonetheless between dipole elements 20 where at least the portion of element 262 which overlaps 260 is between elements 20 in an orthogonal manner thus the rejection of dependent claim 1 is maintained.

Claim 17: Applicant submits claim 17 is directed to the bow tie coupler comprising features similar to that contained in claim 1 where "*Evtioushkine fails to show or suggest the third element and matching network as specifically recited in claim 17*". For reasons discussed with respect to claim 1 above, the "third element" is shown by Evtioushkine et al. as combined elements 260 and 262 (typographically identified as 264 is the rejection of record) where element 262 is shown in Fig. 2 overlapping central dividing transmission line 260 and shown as a unitary element in Fig. 3, thus where 260, 262 or the combination of 260 and 262 may be defined as the third element thus the rejection of dependent claim 17 is maintained.

Claim 21: For reasons given with respect to claim 17 above, it is the position of the Examiner that Evtioushkine et al. clearly shows the limitations of claim 17 thus the rejection of dependent claim 21 is maintained.

Claims 1 – 5, 8, 14, 17, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Vega et al.:

Claims 1 and 17: Applicant submits "*Vega shows, in Fig. 1, first and second antenna elements 112, 114 that are electrically isolated from each other (column 4, lines 13-15), with integrated circuit 116 therebetween. Since Vega teaches electrical isolation of its antenna elements, Vega teaches away from the invention as recited in each of claims 1 and 17 that includes a matching network for electrically connecting its antenna elements. Further, Vega teaches away from the third element as claimed in claims 1 and 17, since Vega has elected to place an integrated circuit between its antenna elements, precluding placement of the claimed third element between the first and second elements*". It is the position of the Examiner that Vega specifically shows coupling (Fig. 13 of record) where the exciter (802) generates a signal that is capacitively coupled to integrated circuitry (116) and to antenna elements 112, 114 where integrated circuitry (116) in turn provides a signal to at least one of the antenna elements 112, 114. The integrated circuitry further provides matching where the rectifier matches or rectifies the power signal and the decoder decodes the signal and provides a modulated signal, thus providing matching (col. 9, lines 29-52), therefore it is the position of the Examiner that Vega shows the first thru third elements, the third

element disposed between the first and second elements and further providing matching, thus the rejection/s is/are maintained.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Evtioushchine et al. in view of Liu et al.:

Applicant submits "*Liu's radiating elements lack a tapered portion with a nose, and so do not correspond to the claimed first and second elements. Since Liu lacks first and second elements with noses, Liu fails to show or suggest the claimed third element disposed between the noses of the first and second elements. Accordingly, Liu's matching network 18 does not correspond to the claimed matching network.*", which the Examiner disagrees. Liu shows a dipole antenna, similar to that shown by Evtioushchine et al. where the dipole elements of Evtioushchine et al., unlike Liu shows a "nose", per se. Nonetheless, the teaching of Liu is used merely to exemplify the square shape of the matching element where Evtioushchine et al. and Liu et al. both teach dipole antenna elements separated by a matching element, thus where the modification of the matching element of Evtioushchine et al. would have been obvious, thus the rejection is maintained.

Claims 15, 19, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vega et al. in view of Suh et al.:

Applicant correctly submits "*Suh was cited for its disclosure of an antenna in an anechoic chamber.*" which is well known in the antenna art. Applicant further submits

that "*Evtioushkine and Suh fails to show or suggest the claimed third element, and further fails to show or suggest the claimed matching network, as recited in claims 1 and 17 and incorporated in each of claims 15 and 19 by virtue of their respective dependency therefrom*" which the Examiner disagrees. For reasons discussed above (with respect to rejections of claims 1 and 17 under 35 U.S.C. 102(b) as being anticipated by Evtioushkine et al.), the rejections of claims 15, 19, 22 and 23 are maintained.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Evtioushkine et al. in view of Hemmie et al.

As with Suh above, Applicant correctly submits "*Hemmie was cited for its disclosure of a signal feed structure being a coaxial cable.*" which is well known in the antenna art. Similarly, the Applicant submits that "*Evtioushkine and Hemmie fails to show or suggest the claimed third element, and further fails to show or suggest the claimed matching network, as recited in claim 17 and incorporated in claims 20 by virtue of its dependence therefrom*" which the Examiner disagrees. For reasons discussed above (with respect to rejections of claims 1 and 17 under 35 U.S.C. 102(b) as being anticipated by Evtioushkine et al.), the rejections of claim 20 is maintained.

Allowable Subject Matter

Claims 7, 10, 12 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dean O. Takaoka whose telephone number is (571) 272-1772. The examiner can normally be reached on 8:30a - 5:00p Mon - Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571) 272-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "D. M. Hala", is positioned above the date.

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November 1, 2005